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L46 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2009:53007 HCAPLUS Full-text

DN 150:97508

TI Reducing the phosphorus content of liquid manure

IN Pietola, Liisa; Kulokoski, Ulla

PA Yara Suomi Oy, Finland

SO PCT Int. Appl., 38pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2009007514	A2	20090115	WO 2008-FI50426	20080711
	W:	AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
PRAI	FI 2007-545	A	20070712		

FI 2008-5608 A 20080618

AB A treatment for reduction of phosphorus in liquid manure is described. The amount of water-soluble phosphorus of liquid manure is easily and effectively reduced by adding thereto a precipitation product containing calcium and magnesium compds. After the treatment, the liquid portion of the liquid manure that is treated by the method can be pumped back to the fields of the farm as fertilizers. The precipitation product according to the invention is easy to use in the farm environment and it is also suited to be used to considerably decrease the phosphorus content of the filtered liquors of dry manure.

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

ST phosphorus pptn liq manure calcium magnesium

IT Manure
(farmyard; reducing phosphorus content of liquid manure)

IT Precipitation (chemical)
(reducing phosphorus content of liquid manure)

IT 7398-69-8, Diallyl dimethyl ammonium chloride
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(reducing phosphorus content of liquid manure)

IT 1309-48-4, Magnesium oxide, biological studies
7439-95-4D, Magnesium, compds. 7778-18-9, Calcium sulfate 13397-24-5, Gypsum, biological studies 14567-64-7, Kieserite
RL: AGR (Agricultural use); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process); USES (Uses)
(reducing phosphorus content of liquid manure)

IT 9003-05-8, Polyacrylamide 1095462-76-2, Fennopol K 3459
RL: AGR (Agricultural use); POF (Polymer in formulation); BIOL (Biological study); USES (Uses)
(reducing phosphorus content of liquid manure)

IT 7723-14-0, Phosphorus, processes
RL: PEP (Physical, engineering or chemical process); REM (Removal or disposal); PROC (Process)
(reducing phosphorus content of liquid manure)

IT 7439-95-4D, Magnesium, compds.
RL: AGR (Agricultural use); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process); USES (Uses)
(reducing phosphorus content of liquid manure)

RN 7439-95-4 HCAPLUS

CN Magnesium (CA INDEX NAME)

Mg

IT 7723-14-0, Phosphorus, processes
RL: PEP (Physical, engineering or chemical process); REM (Removal or disposal); PROC (Process)
(reducing phosphorus content of liquid manure)

RN 7723-14-0 HCAPLUS

CN Phosphorus (CA INDEX NAME)

P

AN 2007:349031 HCAPLUS Full-text
 DN 146:467463
 TI Precipitation of liquid swine manure
 phosphates using magnesium smelting by-
 products
 AU Parent, Gaetan; Belanger, Gilles; Ziadi, Noura; Deland,
 Jean-Pierre; Laperriere, Jean
 CS Soils and Crops Research and Development Centre, Agriculture and Agri-Food
 Canada, Quebec, QC, G1V 2J3, Can.
 SO Journal of Environmental Quality (2007), 36(2), 557-567
 CODEN: JEVQAA; ISSN: 0047-2425
 PB American Society of Agronomy
 DT Journal
 LA English
 AB Swine manure contains considerable amts. of total (P) and soluble P (PO43--P)
 which may increase the soil P content when applied in excess to crop
 requirements and, consequently, risk water eutrophication. The feasibility of
 using Mg from the byproduct of electrolysis and foundries (BPEF) for the
 removal of P from liquid swine manure was studied by adding ≤3 g Mg as BPEF/L
 nursery (NU) and grower-finisher (GF) swine manure in 25-L plastic buckets.
 Changes in P and other elements were monitored for ≤360 h. Small amts. of Mg
 as BPEF (0.5 and 1.0 g Mg/L manure) reduced the P concentration of the liq .
 fraction by 70-95% of both manure types with respect to the control treatment
 of mixed raw manure. A settling period of ≥8 h was necessary to significantly
 reduce the liquid fraction P concentration for both manure types. Reduction
 of PO43--P was 96-100% in the liquid fractions for both manure types, which
 along with natural settling, explains most of the total P reduction in that
 fraction. The addition of BPEF did not influence the N content of manure.
 The low P liquid fraction can be safely applied to saturated P soils whereas
 the high P solid fraction offers the opportunity of transporting manure to
 agricultural soils deficient in P. Since N is conserved, both liquid and
 solid fractions could be valuable fertilizer manure byproducts .
 CC 60-4 (Waste Treatment and Disposal)
 Section cross-reference(s): 19, 61
 ST pptn liq swine manure phosphate
 magnesium smelting byproduct
 IT Foundries
 Manure
 (precipitation of liquid swine manure
 phosphates using magnesium smelting
 byproducts)
 IT Fertilizers
 RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
 (precipitation of liquid swine manure
 phosphates using magnesium smelting
 byproducts)
 IT Phosphates, processes
 RL: REM (Removal or disposal); PROC (Process)
 (precipitation of liquid swine manure
 phosphates using magnesium smelting
 byproducts)
 IT 7439-95-4, Magnesium, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (precipitation of liquid swine manure
 phosphates using magnesium smelting
 byproducts)
 IT 7440-70-2, Calcium, occurrence 7727-37-9, Nitrogen, occurrence
 RL: OCU (Occurrence, unclassified); OCCU (Occurrence)
 (precipitation of liquid swine manure

phosphates using magnesium smelting
byproducts)

IT 7723-14-0, Phosphorus, processes
RL: REM (Removal or disposal); PROC (Process)
(precipitation of liquid swine manure
phosphates using magnesium smelting
byproducts)

IT 7439-95-4, Magnesium, uses
RL: NUU (Other use, unclassified); USES (Uses)
(precipitation of liquid swine manure
phosphates using magnesium smelting
byproducts)

RN 7439-95-4 HCAPLUS
CN Magnesium (CA INDEX NAME)

Mg

IT 7723-14-0, Phosphorus, processes
RL: REM (Removal or disposal); PROC (Process)
(precipitation of liquid swine manure
phosphates using magnesium smelting
byproducts)

RN 7723-14-0 HCAPLUS
CN Phosphorus (CA INDEX NAME)

P

RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L46 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2007:338918 HCAPLUS Full-text
DN 147:37379
TI Using a chemical equilibrium model to predict amendments required to
precipitate phosphorus as struvite in liquid swine
manure

AU Celen, Ipek; Buchanan, John R.; Burns, Robert T.; Robinson, R. Bruce;
Raman, D. Raj

CS Biosystems Engineering and Soil Science, The University of Tennessee,
Knoxville, TN, 37996 4531, USA

SO Water Research (2007), 41(8), 1689-1696
CODEN: WATRAG; ISSN: 0043-1354

PB Elsevier Ltd.
DT Journal
LA English

AB Precipitation of phosphate minerals from liquid swine manure is an established
means of reducing the orthophosphate (OP) concentration This project studied
the usefulness of a chemical equilibrium model, Visual Minteq, for prescribing
the amendments needed to maximize struvite precipitation from liquid swine
manure and thus reduce the OP-P concentration The actual concns. of Mg²⁺,
Ca²⁺, K⁺, OP, NH₄⁺, alkalinity and pH of the liquid swine manure system were
used as inputs to the model. The model was modified to remove species with
extremely low formation rates, because they would not significantly
precipitate in the reaction occurring in a short retention-time process such

as those envisioned for swine manure struvite-formation reactors. Using the model's output, a series of 19-L reactors were used to verify the results. Verification results demonstrated that Visual Minteq can be used to pre-determine the concentration of amendments required to maximize struvite recovery.

CC 60-4 (Waste Treatment and Disposal)
 ST chem equil model amendment pptn phosphorus struvite swine manure
 IT Alkalinity
 Manure
 Optimization
 Simulation and Modeling
 (using chemical equilibrium model to predict amendments required to precipitate phosphorus as struvite in liquid swine manure)
 IT Phosphates, processes
 RL: REM (Removal or disposal); PROC (Process)
 (using chemical equilibrium model to predict amendments required to precipitate phosphorus as struvite in liquid swine manure)
 IT 15490-91-2P, Struvite
 RL: FMU (Formation, unclassified); PUR (Purification or recovery); FORM (Formation, nonpreparative); PREP (Preparation)
 (using chemical equilibrium model to predict amendments required to precipitate phosphorus as struvite in liquid swine manure)
 IT 7439-95-4, Magnesium, occurrence 7440-09-7, Potassium, occurrence 7440-70-2, Calcium, occurrence 14798-03-9, Ammonium, occurrence
 RL: POL (Pollutant); OCCU (Occurrence)
 (using chemical equilibrium model to predict amendments required to precipitate phosphorus as struvite in liquid swine manure)
 IT 7723-14-0, Phosphorus, processes
 RL: REM (Removal or disposal); PROC (Process)
 (using chemical equilibrium model to predict amendments required to precipitate phosphorus as struvite in liquid swine manure)
 IT 7439-95-4, Magnesium, occurrence
 RL: POL (Pollutant); OCCU (Occurrence)
 (using chemical equilibrium model to predict amendments required to precipitate phosphorus as struvite in liquid swine manure)
 RN 7439-95-4 HCAPLUS
 CN Magnesium (CA INDEX NAME)

Mg

IT 7723-14-0, Phosphorus, processes
 RL: REM (Removal or disposal); PROC (Process)
 (using chemical equilibrium model to predict amendments required to precipitate phosphorus as struvite in liquid swine manure)
 RN 7723-14-0 HCAPLUS
 CN Phosphorus (CA INDEX NAME)

P

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L46 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 2007:71399 HCAPLUS Full-text
 DN 147:100745
 TI Biosolids and sustainable agriculture: the cover area regional digester manure and biosolids processing facility
 AU Wert, Jason D.; Dick, Julie; Siegfried, Steven M.; Delphos, Paul J.
 CS Herbert, Rowland & Grubic, Inc., State College, PA, 16801, USA
 SO WEFTEC.05, Conference Proceedings, Annual Technical Exhibition & Conference, 78th, Washington, DC, United States, Oct. 29-Nov. 2, 2005 (2005), 6504-6512 Publisher: Water Environment Federation, Alexandria, Va. CODEN: 69JOAM
 DT Conference; (computer optical disk)
 LA English
 AB Over the past several years, the Cove Area Regional Digester Project has been studied to deal with numerous issues that face the Borough of Martinsburg and its surrounding communities that form an area known as Morrison's Cove, in Blair and Bedford Counties, Pennsylvania. This densely populated agricultural community is home to over 25,000 head of dairy animals and is located in the middle of the pristine Clover Creek Watershed. In recent times, many of the larger operations have converted to liquid manure application to dispose of the estimated 200 tons of manure produced daily within the Cove. While most of the agricultural operations follow existing nutrient management plans, changing regulations have begun to impact manure disposal operations. Many fields within the Cove have been identified as exceeding maximum recommended limits for phosphorus. While these fields can possibly meet future nitrogen regulations, the long-term viability of complying with proposed phosphorus limits is extremely unlikely. At this time, no viable option exists for the existing agricultural operations, which range in size from 80 animals to in excess of 2,200 animals, to dispose of excess manure. This will force many operations to consider alternative implementation plans for their manure products, increasing costs. Linked with the disposal of manure, the public water supply of the Cove consists of groundwater supply wells. Located in a karst geol. region, agricultural runoff has steadily increased nitrate pollution to the point that two of the four wells that supply Martinsburg Borough now require treatment as they exceed 10 mg/l (Federal/State Maximum for Nitrates in Potable Supplies). In addition, numerous private wells and water supplies have been neg. impacted by the runoff. In light of these multiple environmental and economic problems, the Agriculture Today and Tomorrow Committee was formed to develop solns. and weigh their advantages and disadvantages. After several years of work, the concept, and now preliminary design, of the Cove Area Regional Digester has been completed.
 CC 60-4 (Waste Treatment and Disposal)
 ST digester biosolid agriculture manure Pennsylvania
 IT Runoff
 (agricultural; design of cove area regional digester for manure treatment and disposal system for local agricultural and municipal community of Western Pennsylvania)
 IT Digestion, biological
 (anaerobic; design of cove area regional digester for manure treatment and disposal system for local agricultural and municipal community of Western Pennsylvania)
 IT Chemical oxygen demand
 Economics
 Manure
 Wastewater treatment
 Wastewater treatment sludge
 (design of cove area regional digester for manure treatment and disposal system for local agricultural and municipal community of Western Pennsylvania)
 IT Nitrates, processes

RL: BCP (Biochemical process); POL (Pollutant); REM (Removal or disposal); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
 (design of cove area regional digester for manure treatment and disposal system for local agricultural and municipal community of Western Pennsylvania)

IT Drying
 (dewatering; design of cove area regional digester for manure treatment and disposal system for local agricultural and municipal community of Western Pennsylvania)

IT Solids
 (suspended; design of cove area regional digester for manure treatment and disposal system for local agricultural and municipal community of Western Pennsylvania)

IT 7723-14-0, Phosphorus, processes 7727-37-9, Nitrogen, processes
 RL: BCP (Biochemical process); POL (Pollutant); REM (Removal or disposal); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
 (design of cove area regional digester for manure treatment and disposal system for local agricultural and municipal community of Western Pennsylvania)

IT 7723-14-0, Phosphorus, processes
 RL: BCP (Biochemical process); POL (Pollutant); REM (Removal or disposal); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
 (design of cove area regional digester for manure treatment and disposal system for local agricultural and municipal community of Western Pennsylvania)

RN 7723-14-0 HCAPLUS
 CN Phosphorus (CA INDEX NAME)

P

L46 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 2005:153308 HCAPLUS Full-text
 DN 142:468374
 TI Tertiary treatment of the liquid fraction of pig manure with *Phragmites australis*
 AU Meers, Erik; Rousseau, Diederik P. L.; Blomme, Nathalie; Lesage, Els; Du Laing, Gijs; Tack, Filip M. G.; Verloo, Marc G.
 CS Department of Applied Analytical and Physical Chemistry, Laboratory of Analytical Chemistry and Applied Ecochemistry, Ghent University, Ghent, 9000, Belg.
 SO Water, Air, & Soil Pollution (2005), 160(1-4), 15-26
 CODEN: WAPLAC; ISSN: 0049-6979
 PB Springer
 DT Journal
 LA English
 AB Since 2003, the pig industry in Flanders (Belgium) is obliged to process a portion of the nutrient overprod. In general, pig manure processing occurs as follows: (1) separation into liquid and solid fractions, (2) conversion of the solid fraction to an exportable product (e.g. composting) and (3) reduction of nutrient contents in the liquid fraction before discharge into surface water or spreading on arable land. The aim was to evaluate the potential of constructed wetlands (CWs) planted with *Phragmites australis* to reduce N, P and COD in the liquid fraction to levels below discharge criteria. The removal efficiency of heavy metals (Cu, Zn) present at elevated levels in the liquid fraction was evaluated. A greenhouse experiment was conducted with subsurface flow (SSF) reed beds (2 + 0.125 + 0.11 m) filled with sand, loam,

clayey sand or expanded clay (argex). The liquid manure load was set at 1 mm/day. Removal efficiencies were 64-75% COD, 73-83% N and 71-92% P, depending on the matrix material used. However, effluent levels still remained significantly above the Flemish legal discharge criteria of 2, 15 and 125 mg/L for P, N and COD, resp.

CC 60-1 (Waste Treatment and Disposal)

ST tertiary treatment liq pig manure Phragmites

IT Wastewater treatment
(land application, wetland; tertiary treatment of liquid fraction of pig manure with Phragmites australis)

IT Phragmites australis
(tertiary treatment of liquid fraction of pig manure with Phragmites australis)

IT Nitrates, processes
RL: BSU (Biological study, unclassified); REM (Removal or disposal); BIOL (Biological study); PROC (Process)
(tertiary treatment of liquid fraction of pig manure with Phragmites australis)

IT Heavy metals
RL: REM (Removal or disposal); PROC (Process)
(tertiary treatment of liquid fraction of pig manure with Phragmites australis)

IT 7440-50-8, Copper, processes 7440-66-6, Zinc, processes
7723-14-0, Phosphorus, processes 7727-37-9, Nitrogen, processes
14798-03-9, Ammonium, processes
RL: REM (Removal or disposal); PROC (Process)
(tertiary treatment of liquid fraction of pig manure with Phragmites australis)

IT 7723-14-0, Phosphorus, processes
RL: REM (Removal or disposal); PROC (Process)
(tertiary treatment of liquid fraction of pig manure with Phragmites australis)

RN 7723-14-0 HCAPLUS

CN Phosphorus (CA INDEX NAME)

P

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L46 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2002:869337 HCAPLUS Full-text

DN 137:374571

TI System and method for separating components of liquid manure

IN Dutil, Camil; Gagne, Gilles; Chabot, Rock; Comeau, Yves

PA Envirogain Inc., Can.

SO U.S. Pat. Appl. Publ., 10 pp.
CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 20020166819	A1	20021114	US 2002-120776	20020412
	CA 2381681	A1	20021012	CA 2002-2381681	20020412
PRAI	US 2001-283149P	P	20010412		

AB The present invention relates to a system and method for the treatment of liquid manure, particularly pig manure, and wastewater produced in by animals. The method comprises the combined application of filtration, bioreaction, and electrochem. treatment, namely electroflotation, to effect separation of contaminants from the water fraction. The treatment system comprises at least one of a separation system for separating liquid phase and solid phase of liq. manure or a bioreactor for clarifying separated liquid phase by aeration to obtain clarified aqueous phase, in combination with an electrochem. system inducing at least one of a flocculation, coagulation or disinfection of particles contained in the clarified aqueous phase. The separation system performs at least one of sifting, riddling, filtration, settling, sedimentation, or pressing. Filtration is performed with a membrane filter, porous hard wall, cloth drum type, or tangential filtration. The solid phase may be recovered as a fertilizer or a soil additive.

IC ICM C02F0001-00

INCL 210696000

CC 60-1 (Waste Treatment and Disposal)
Section cross-reference(s): 19

ST liq manure sepn filtration bioreaction
electroflotation treatment fertilizer

IT Wastewater treatment
(aeration; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Wastes
(animal, wastewater; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Wastewater treatment
(biol.; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Wastewater treatment
(clarification; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Wastewater treatment
(coagulation; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Anions
Cations
Manure
(combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Fertilizers
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Wastewater treatment
(disinfection; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Wastewater treatment
(electroflotation; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Wastewater treatment
(filtration; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

manure)

IT Wastewater treatment
(flocculation; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Filters
(membrane filter, porous hard wall, cloth drum type, or tangential filter; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT Particles
(metal, flocculant; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT 7723-14-0D, Phosphorus, compds. 7727-37-9D, Nitrogen, compds.
RL: BCP (Biochemical process); REM (Removal or disposal); BIOL (Biological study); PROC (Process)
(combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT 7429-90-5D, Aluminum, salts 7439-89-6D, Iron, salts 7439-95-4D
, Magnesium, salts 7705-08-0, Ferric chloride, uses 7720-78-7, Ferrous sulfate 7758-94-3, Ferrous chloride 10028-22-5, Ferric sulfate 10028-22-5D, Ferric sulfate, chlorinated 55892-56-3, Basic aluminum sulfate 55892-56-3D, Sulfuric acid, aluminum salt, basic, chlorinated
RL: NUU (Other use, unclassified); USES (Uses)
(combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT 7487-88-9, Magnesium sulfate, uses 7786-30-3, Magnesium chloride, uses
RL: NUU (Other use, unclassified); USES (Uses)
(flocculant; combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

IT 7723-14-0D, Phosphorus, compds.
RL: BCP (Biochemical process); REM (Removal or disposal); BIOL (Biological study); PROC (Process)
(combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

RN 7723-14-0 HCAPLUS
CN Phosphorus (CA INDEX NAME)

P

IT 7439-95-4D, Magnesium, salts
RL: NUU (Other use, unclassified); USES (Uses)
(combined application of filtration, bioreaction, and electrochem. treatment for separating components of liquid manure)

RN 7439-95-4 HCAPLUS
CN Magnesium (CA INDEX NAME)

Mg

L46 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 1999:697796 HCAPLUS Full-text
 DN 131:290734
 TI Treatment of organic wastes by anaerobic fermentation
 IN Moro, Masashi; Soeda, Yuji; Yamamoto, Tetsuya; Shibata, Toshiyuki;
 Komatsu, Toshihiro
 PA Kubota, Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11300311	A	19991102	JP 1998-112582	19980423
	JP 3835927	B2	20061018		
PRAI	JP 1998-112582		19980423		
AB	The method comprises passing organic wastes, livestock manure or agricultural sludge slurries through a solid-liq. separator to give dewatered sludge, mixing the dewatered sludge with pulverized trash or food wastes and anaerobic fermentation of the mixture to recover CH ₄ gases as a byproduct, filtering liq. stream from the separator to remove residual sludge, dephosphorizing the filtrate in a precipitation tank to recover the crystalline MgNH ₄ PO ₄ ppts. useful as feedstock for organic fertilizer manufacturing, and then biol. treatment of the dephosphorized liquid to obtain a clean water.				
IC	ICM B09B0003-00				
	ICS C02F0011-04				
CC	60-4 (Waste Treatment and Disposal)				
ST	org waste anaerobic fermn methane prodn; livestock manure food waste anaerobic fermn; dephosphorization manure fecal waste compost fertilizer				
IT	Wastewater treatment (coagulation; in methane gas formation from treatment of organic wastes by anaerobic fermentation)				
IT	Wastewater treatment (dephosphorization; in methane gas formation from treatment of organic wastes by anaerobic fermentation)				
IT	Fertilizers RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PREP (Preparation); PROC (Process) (feedstock, manufacture of, from treatment of organic wastes by anaerobic fermentation)				
IT	Wastewater treatment (precipitation; in methane gas formation from treatment of organic wastes by anaerobic fermentation)				
IT	Manure Wastes (treatment of organic wastes by anaerobic fermentation)				
IT	7785-21-9P, Ammonium magnesium phosphate RL: PUR (Purification or recovery); PREP (Preparation) (formation of crystalline; from treatment of organic wastes by anaerobic fermentation)				
IT	74-82-8P, Methane, preparation RL: PUR (Purification or recovery); PREP (Preparation) (formation of; from treatment of organic wastes by anaerobic fermentation)				

L46 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 1998:457151 HCAPLUS Full-text

DN 129:99420
 OREF 129:20395a,20398a
 TI Separation of raw agricultural waste
 IN Miknevich, Joseph P.; Hassick, Denis E.
 PA Calgon Corp., USA
 SO U.S., 8 pp.
 CODEN: USXXAM

DT Patent
 LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5776350	A	19980707	US 1996-716827	19960912
PRAI	US 1996-716827		19960912		

AB A method for separating raw agricultural waste into a liquid portion and a nutrient enriched solids portion is described. This method includes providing raw agricultural waste to be treated, adding to the raw agricultural waste an effective amount of a composition comprising a quaternized amino methylated polyacrylamide polymer for separating the raw agricultural waste into a mixture having a liquid portion and a nutrient solids portion, mixing the composition with the raw agricultural waste to facilitate the separation, and subjecting the mixture to at least one mech. separation means for segregating the separated liquid portion from the separated nutrient solids portion. A method for transforming raw agricultural waste into a clarified liq. portion and a dewatered nutrient enriched solids portion is also provided..

IC ICM C02F0001-56

INCL 210710000

CC 60-4 (Waste Treatment and Disposal)

ST agricultural waste recycling disposal treatment; manure
 recycling disposal treatment

IT Manure

Recycling

Solid wastes

Wastes

(separation of raw agricultural waste)

IT 69418-26-4, Acrylamide-acryloyloxyethyl trimethyl ammonium chloride
 copolymer 201816-56-0, Excel Ultra 100 209735-42-2, Percol 7972CS
 RL: NUU (Other use, unclassified); USES (Uses)

(separation of raw agricultural waste)

IT 7429-90-5, Aluminum, processes 7439-95-4, Magnesium,
 processes 7439-96-5, Manganese, processes 7440-09-7, Potassium,
 processes 7440-23-5, Sodium, processes 7440-39-3, Barium, processes
 7440-50-8, Copper, processes 7440-66-6, Zinc, processes 7440-70-2,
 Calcium, processes 7723-14-0, Phosphorus, processes
 RL: REM (Removal or disposal); PROC (Process)

(separation of raw agricultural waste)

IT 7439-95-4, Magnesium, processes 7723-14-0,
 Phosphorus, processes
 RL: REM (Removal or disposal); PROC (Process)

(separation of raw agricultural waste)

RN 7439-95-4 HCAPLUS

CN Magnesium (CA INDEX NAME)

Mg

RN 7723-14-0 HCAPLUS

CN Phosphorus (CA INDEX NAME)

P

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> => fil agricola
 FILE 'AGRICOLA' ENTERED AT 15:42:52 ON 05 FEB 2009

FILE COVERS 1970 TO 6 Jan 2009 (20090106/ED)

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 substance identification.

=> d all

L64 ANSWER 1 OF 1 AGRICOLA Compiled and distributed by the National
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 (2009) on STN

AN 2008:14667 AGRICOLA Full-text
 DN IND43995903
 TI Precipitation of Liquid Swine Manure Phosphates Using
 Magnesium Smelting By-Products.

AU Parent, G.; Belanger, G.; Ziadi, N.; Deland, J.P.; Laperriere, J.
 AV DNAL (QH540.J6)
 SO Journal of environmental quality, 2007 Mar-Apr Vol. 36, no. 2 p. 557-567
 ISSN: 0047-2425

NTE Includes references
 DT Article; (ELECTRONIC RESOURCE)
 FS Other US
 LA English

AB Swine manure contains considerable amounts of total (P) and soluble phosphorus
 (PO4-P) which may increase the soil P content when applied in excess to crop
 requirements and, consequently, risk water eutrophication. The feasibility of
 using magnesium (Mg) from the by- product of electrolysis and foundries (BPEF)
 for the removal of P from liquid swine manure was studied by adding up to 3 g
 of Mg as BPEF per liter of nursery (NU) and grower-finisher (GF) swine manure
 in 25-L plastic buckets. Changes in P and other elements were monitored for up
 to 360 h. Small amounts of Mg as BPEF (0.5 and 1.0 g Mg L-1 manure) reduced
 the total P concentration of the liquid fraction by 70 to 95% of both manure
 types with respect to the control treatment of mixed raw manure. A settling
 period of 8 h or more was necessary to significantly reduce the liquid
 fraction's total P concentration for both manure types. Reduction of PO4-P
 varied from 96 to 100% in the liquid fractions for both manure types, which
 along with natural settling, explains most of the total P reduction in that
 fraction. The addition of BPEF did not influence the N content of manure. The
 low P liquid fraction can be safely applied to saturated P soils whereas the
 high P solid fraction offers the opportunity of transporting manure to

agricultural soils deficient in P. Since N is conserved, both liquid and solid fractions could be valuable fertilizer manure by-products.

CC W000 Pollution

CTLC animal manure management; chemical precipitation;
industrial byproducts; liquid manure; magnesium;
metallurgy; nitrogen; organic fertilizers; phosphates; phosphorus; pig
manure; provenance

GTO Quebec

RN 7439-95-4 (MAGNESIUM)
7723-14-0 (PHOSPHORUS)
7727-37-9 (NITROGEN)
117344-32-8 (BPEF)

=> => fil biosis

FILE 'BIOSIS' ENTERED AT 15:50:26 ON 05 FEB 2009

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FILE COVERS 1926 TO DATE.

CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNS) PRESENT
FROM JANUARY 1926 TO DATE.

RECORDS LAST ADDED: 4 February 2009 (20090204/ED)

BIOSIS has been augmented with 1.8 million archival records from 1926
through 1968. These records have been re-indexed to match current
BIOSIS indexing.

=> d all tot

L80 ANSWER 1 OF 2 BIOSIS COPYRIGHT (c) 2009 The Thomson Corporation on STN

AN 2007:284791 BIOSIS Full-text

DN PREV200700285811

TI Precipitation of liquid swine manure phosphates using
magnesium smelting by-products.

AU Parent, Gaetan [Reprint Author]; Belanger, Gilles; Ziadi, Noura; Deland,
Jean-Pierre; Laperriere, Jean

CS Agr and Agri Food Canada, Soils and Crops Res and Dev Ctr, 2560 Hochelaga
Blvd, Quebec City, PQ G1V 2J3, Canada
parentg@agr.gc.ca

SO Journal of Environmental Quality, (MAR-APR 2007) Vol. 36, No. 2, pp.
557-567.

CODEN: JEVQAA. ISSN: 0047-2425.

DT Article

LA English

ED Entered STN: 2 May 2007

Last Updated on STN: 2 May 2007

AB Swine manure contains considerable amounts of total (P) and soluble phosphorus
(PO₄-P) which may increase the soil P content when applied in excess to crop
requirements and, consequently, risk water eutrophication. The feasibility of
using magnesium (Mg) from the by-product of electrolysis and foundries (BPEF)
for the removal of P from liquid swine manure was studied by adding up to 3 g
of Mg as BPEF per liter of nursery (NU) and grower-finisher (GF) swine manure
in 25-L plastic buckets. Changes in P and other elements were monitored for up
to 360 h. Small amounts of Mg as BPEF (0.5 and 1.0 g Mg L⁻¹ manure) reduced
the total P concentration of the liquid fraction by 70 to 95% of both manure
types with respect to the control treatment of mixed raw manure. A settling
period of 8 h or more was necessary to significantly reduce the liquid
fraction's total P concentration for both manure types. Reduction of PO₄-P
varied from 96 to 100% in the liquid fractions for both manure types, which

along with natural settling, explains most of the total P reduction in that fraction. The addition of BPEF did not influence the N content of manure. The low P liquid fraction can be safely applied to saturated P soils whereas the high P solid fraction offers the opportunity of transporting manure to agricultural soils deficient in P. Since N is conserved, both liquid and solid fractions could be valuable fertilizer manure by-products.

CC Biochemistry studies - General 10060
 Biochemistry studies - Minerals 10069
 Soil science - General and methods 52801
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Soil Science
 IT Chemicals & Biochemicals
 magnesium; phosphorus; phosphate
 IT Miscellaneous Descriptors
 manure; agricultural soil; liquid fraction; water
 eutrophication; byproduct of electrolysis and foundry
 ORGN Classifier
 Suidae 85740
 Super Taxa
 Artiodactyla; Mammalia; Vertebrata; Chordata; Animalia
 Organism Name
 pig (common)
 Taxa Notes
 Animals, Artiodactyls, Chordates, Mammals, Nonhuman Vertebrates,
 Nonhuman Mammals, Vertebrates
 RN 7439-95-4 (magnesium)
 7723-14-0 (phosphorus)
 14265-44-2 (phosphate)

L80 ANSWER 2 OF 2 BIOSIS COPYRIGHT (c) 2009 The Thomson Corporation on STN
 AN 2000:293634 BIOSIS Full-text
 DN PREV200000293634
 TI Method for dephosphorizing pig manure.
 AU Kruidhof, Hendrik [Inventor, Reprint author]
 CS Almelo, Netherlands
 ASSIGNEE: Ceres Milieu Holding B.V., Enschede, Netherlands
 PI US 5993503 19991130
 SO Official Gazette of the United States Patent and Trademark Office Patents,
 (Nov. 30, 1999) Vol. 1228, No. 5. e-file.
 CODEN: OGUPE7. ISSN: 0098-1133.
 DT Patent
 LA English
 ED Entered STN: 6 Jul 2000
 Last Updated on STN: 7 Jan 2002
 AB The invention relates to a method for dephosphorizing manure, in particular pig manure, comprising of causing phosphate to dissolve, which phosphate is present at least partially in the form of phytate in the manure, separating the manure into a solid and a liquid fraction and removing the phosphate from the liquid fraction of the manure. Causing phosphate to dissolve can be achieved in different ways, for instance by storing the manure for a predetermined period of time under conditioned circumstances, or by sustaining a continuous movement of the manure at a temperature of at least 15degree C., preferably between 20 and 40degree C., to allow free escape therefrom of formed gases, or by the presence of means for complexing divalent ions, or by the enzymatic decomposition of phytate present in the manure. The phosphate is preferably removed from the liquid fraction by causing struvite to be precipitated therefrom.

NCL 071021000
 CC General biology - Miscellaneous 00532
 IT Major Concepts

best 2
i

Animal Husbandry (Agriculture); Methods and Techniques; Waste
Management (Sanitation)

IT Methods & Equipment
dephosphorization of pig manure: waste management
method
IT Miscellaneous Descriptors
pig manure

=> => d his

(FILE 'HOME' ENTERED AT 14:53:49 ON 05 FEB 2009)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 14:53:58 ON 05 FEB 2009

L1 2 S US20060144107/PN OR (US2006-536896# OR WO2003-CA1863)/AP, PRN
L2 1 S L1 NOT DESIGN/TI
E PARENT/AU
L3 1 S E3
E PARENT/G/AU
E PARENT G/AU
L4 20 S E3, E4
E SIMARD/AU
E SIMARD R/AU
L5 107 S E3, E7, E10-E12
E VALEE/AU
E MANURE
L6 29528 S E3
E MANUR
L7 1254 S E3-E28 NOT L6
E MANURE/CT
L8 16151 S E3-E20
E E3+ALL
L9 16433 S E3, E6
E E2+ALL
E E2
E E3+ALL
E E13
E E3+ALL
E E2+ALL
E E2
L10 470 S E4
L11 31415 S L6-L10

FILE 'REGISTRY' ENTERED AT 15:13:47 ON 05 FEB 2009

L12 1 S 7723-14-0
L13 1 S 14265-44-2
L14 1 S 7664-38-2

FILE 'HCAPLUS' ENTERED AT 15:14:24 ON 05 FEB 2009

L15 267 S L12(L)REM/RL AND L11
L16 15 S L13(L)REM/RL AND L11
L17 2 S L14(L)REM/RL AND L11
L18 276 S L15-L17
L19 29 S L11 AND (DEPHOSPH? OR DE PHOSPH?)
L20 297 S L18, L19
L21 37 S L20 AND (BYPRODUCT OR BY PRODUCT)
L22 2 S L20 AND BPEF
L23 3 S L20 AND (FOUNDRY OR ELECTROLYSIS)
E FOUNDRY/CT

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      E FOUNDRY/CT
      E E2+ALL
L24      1 S L20 AND E1
L25      1 S L20 AND SMELT?
L26      2 S L21 AND L23-L25
L27      3 S L22-L26
L28      2 S L1-L5 AND L20
L29      17 S L1-L5 AND L11
L30      15 S L29 NOT L28
L31      3 S L27,L28
L32      105 S L20 AND (MG# OR MAGNESIUM)
L33      11 S L32 AND L21-L28,L31
L34      8 S L33 NOT L31
          SEL AN 2 5 6
L35      3 S L34 AND E1-E6
L36      6 S L31,L35

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FILE 'REGISTRY' ENTERED AT 15:25:32 ON 05 FEB 2009

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L37      84 S MG/MF
L38      16 S L37 NOT MASS

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FILE 'HCAPLUS' ENTERED AT 15:25:40 ON 05 FEB 2009

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L39      28 S L38 AND L20
L40      4 S L39 AND L21-L31
L41      2 S L40 NOT (144:455555 OR 137:299142)/DN
L42      24 S L39 NOT L40
          SEL AN 3 17 23
L43      3 S L42 AND E7-E12
L44      8 S L35,L41,L43
L45      8 S L44 AND L1-L11,L12-L14,L15-L36,L38-L44
L46      8 S L45 AND (SWINE OR PIG OR WASTE OR LIQUID OR ?PHOSPHATE?)

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FILE 'HCAPLUS' ENTERED AT 15:34:17 ON 05 FEB 2009

FILE 'AGRICOLA' ENTERED AT 15:34:33 ON 05 FEB 2009

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      E MANURE
L47      17829 S E3-E8,E10-E12
          E MANURE/CTLIC
          E E27+ALL
L48      9616 S MANURE?/CTLIC,CW
          E PIG MANURE/CT
          E E3+ALL
          E E4+ALL
L49      4069 S E4 OR E5+NT OR E22 OR E65 OR E67
L50      17889 S L47-L49
L51      7 S L50 AND (DEPHOSPH? OR DE PHOSPH?)
          E DEPHOSPHORYLATION/CTLIC
L52      2 S L50 AND E3
          E DEPHOSPHORYLATION/CW
L53      7 S L51,L52
L54      7 S L53 AND L47-L50
          E PIG MANURE/CT
          E E3+ALL
L55      398 S E6
          E E5+ALL
L56      3192 S E5+NT
L57      7 S L56,L50 AND (DEPHOSPH? OR DE PHOSPH? OR DEPHOSPHORYLATION/CTL
L58      7 S L54,L57
L59      490 S L50 AND (BYPRODUCT OR BY PRODUCT)
L60      2 S L59 AND (FOUNDRY OR SMELT?)

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L61 1 S L60 AND SWINE
E ANIMAL MANURE MANAGEMENT/CT
E ANIMAL MANURE MANAGEMENT/CTLC
L62 355 S E3
E INDUSTRIAL BYPRODUCT/CTLC
L63 1 S E4 AND L62
L64 1 S L61,L63

FILE 'AGRICOLA' ENTERED AT 15:42:52 ON 05 FEB 2009

L65 1 S BPEF AND L50,L62

FILE 'BIOSIS' ENTERED AT 15:43:26 ON 05 FEB 2009

L66 21224 S MANURE
E MANURE/CT
L67 337 S MANURE?/CT
L68 21224 S L66,L67
L69 9 S L68 AND (?DEPHOSPH? OR DE PHOSPH?)
L70 1 S L69 AND 2000:293634/AN
L71 5280 S L68 AND ?PHOSPH?
L72 3756 S L68 AND L12-L14
L73 5280 S L71,L72
L74 1 S L73 AND BPEF
L75 16 S L73 AND (BYPRODUCT? OR "BY PRODUCT")
L76 213 S L73 AND PRODUCT
L77 224 S L74-L76
L78 39 S L77 AND (FOUNDRY OR SMELT? OR INDUSTR?)
L79 1 S L78 AND 2007:284791/AN
L80 2 S L70,L79

FILE 'BIOSIS' ENTERED AT 15:50:26 ON 05 FEB 2009

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